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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,587	04/09/2001	Pavel N. Laptev	SPUTT-56141	7932

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EXAMINER

ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
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1763

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DATE MAILED: 08/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/829,587

Applicant(s)

LAPTEV, PAVEL N.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 22-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Request for Information

1. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application. Issues outlined below are directed to the use of the claimed invention that may predate the filing of this application by more than one year. Identification of any use of the claimed invention known to any of the inventors at the time the application was filed notwithstanding the date of the use is addressed.

2. An issue of public use or on sale activity has been raised in this application. In order for the examiner to properly consider patentability of the claimed invention under 35 U.S.C. 102(b), additional information regarding this issue is required as follows: Applicant is requested to provide details of the sale of the "apparatus with features similar to the apparatus shown in Figure 1" (Specification page 12, lines 1-5) including proof of the date said apparatus was published for sale. Applicant is further requested to provide a specification, including Figures, for said apparatus which may be satisfied by the marketing materials for said apparatus.

Applicant is reminded that failure to fully reply to this requirement for information will result in a holding of abandonment.

3. In response to this requirement, please provide the names of any products or services that have incorporated the claimed subject matter.

4. The fee and certification requirements of 37 CFR 1.97 are waived for those documents submitted in reply to this requirement. This waiver extends only to those documents within the scope of this requirement under 37 CFR 1.105 that are included in the applicant's first complete

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communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this requirement and any information disclosures beyond the scope of this requirement under 37 CFR 1.105 are subject to the fee and certification requirements of 37 CFR 1.97.

5. The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained will be accepted as a complete reply to the requirement for that item.

6. This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

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Drawings

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "20" and "30" have both been used to designate "enclosure". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. *Corrected ✓*

8. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "30" has been used to designate both "enclosure" and "plate". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. *Corrected ✓*

9. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "34" and "30" have both been used to designate "plate". A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. *Corrected ✓*

10. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "first electrical conductor" and the "second electrical conductor" must be shown or the features canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-21 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Independent claim 1 requires:

“

a first electrode biased to a first voltage and spaced from the wafer,
a second electrode biased to a second voltage lower than the first voltage and spaced apart from the first electrode and the wafer

”

Independent claims 7, 14, and 21 are similarly claimed. Applicant has not provided sufficient teaching of how a wafer can be “spaced” from both electrodes and any physically supporting surfaces. As a result the wafer (16, Figure 1) is disclosed as unsupported or physically, not electrically, floating. Applicant has only stated in the specification that the wafer is “spaced” from electrode 22 by distances up to 2mm. How is the wafer “spaced” from electrode 22 by distances up to 2mm?

3. Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Apparatus components of “first electrical conductor” and the “second electrical conductor” critical or essential to the practice of the invention, but not included in the claims is

“maybe”

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not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

Rationale for considering the omitted subject matter critical or essential is due to the relationship of said omitted components with the first and second electrodes.

4. Claims 16 and 20 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Apparatus components of "first electrically conductive member" and the "second electrically conductive member" critical or essential to the practice of the invention, but not included in the claims is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). Rationale for considering the omitted subject matter critical or essential is due to the relationship of said omitted components with the first and second electrodes.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 14 recites the limitation "first wafer" in page 24 lines 13-14. There is insufficient antecedent basis for this limitation in the claim.

7. Claims 9, 16, and 20 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: The relationship between the first and second electrodes and:

- i. "first electrically conductive member" and the "second electrically conductive member"
- ii. "first electrical conductor" and the "second electrical conductor"

"may
be"

maintain

corrected

"may
be"

maintain

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Due to the omission of essential structural cooperative relationships of the above elements, claims 9 and 16 cannot have art-based rejections until the omitted essential structural cooperative relationships of the above elements are rectified.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 7, 8, 11, 14, 15, 19, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Koshimizu (USPat. 5,980,687). Koshimizu teaches a conduit (202, Figure 3) for molecules of a gas (column 5, lines 13-16), a first electrode at a first position (110, Figure 1) biased to a first voltage (column 4, lines 43-55) and spaced from the wafer (W attached to 116, Figure 1), a second electrode at a second position (116, Figure 1) biased to a second voltage lower ("Thus, predetermined high frequency powers are, preferably the same high frequency power is, applied to the first and second susceptors 110 and 116, respectively"; column 4, lines 46-51) than the first voltage (column 4, lines 43-55) --
That "preferably the same high frequency" meets "lower" is drawn to rejections of apparatus claims, as opposed to method claims, as presently provided for examination. In particular, it has been established that apparatus claims must distinguish from the prior art in terms of structure rather than function. See MPEP 2114. In particular, the "Manner of operating the device does not differentiate apparatus claims from the prior art.

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Further, a second electrode at a second position biased to a second voltage lower (as above) than the first voltage and spaced from the first electrode and the wafer, magnetic members providing a magnetic field, the first electrode (110, Figure 1) and the magnetic members (124, Figure 1) being disposed relative to each other (114, Figure 1; column 3, lines 54-61). The second electrode (116, Figure 1) and the wafer (W attached to 110, Figure 1) being disposed relative to each other (122, Figure 1; column 4, lines 13-22).

Koshimizu further teaches a first member (130, Figure 1) disposed adjacent the first electrode (110, Figure 1) for providing a reference potential different in magnitude ("Thus, predetermined high frequency powers are, preferably the same high frequency power is, applied to the first and second susceptors 110 and 116, respectively"; column 4, lines 46-51) from the bias on the first electrode (110, Figure 1) to create a first electrical field, and a second member (134) disposed adjacent the second electrode (116, Figure 1) for providing the reference potential to create a second electrical field.

Koshimizu further teaches the second electrode (116, Figure 1) and the wafer (W) providing a first capacitor of a high impedance, and the wafer and the ions in the enclosure providing a

second capacitor of a low impedance in a circuit – it is anticipated by Koshimizu and common practice in the art that all wafers (or other articles) positioned on supports or electrodes would necessarily have a gap between the wafer/article and the support surface upon which the wafer/article is resting or electrically clamped.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5, 6, 10, 12, 13, 17, 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koshimizu (USPat. 5,980,687), as applied to claims 1-4, 7, 9, 11, 14, 15, 19, and 21, and further in view of Nowak et al (USPat. 6,220,201). Koshimizu does not provide apparatus to support an electrically floating substrate. Nowak teaches a similar plasma apparatus (Figure 1 – Prior Art). In particular, Nowak teaches a switch (52) such that the wafer and pedestal are allowed to electrically float (column 7, lines 23-46). It would have been obvious to one of ordinary skill in the art at the time the invention was made for Koshimizu to implement the Nowak switch to electrically float the substrate.
-
- Motivation for Koshimizu to implement the Nowak switch to electrically float the substrate is

drawn to –

“

It is beneficial to be able to so control the pedestal potential in order to either clean the pedestal from residues or, alternatively, to protect it from over cleaning and damage.

” (column 8, lines 19-22).

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Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPat. 6,237,527; 6,379,576; 5,897,752; 6,346,428; 5,942,042; 6,406,925; 6,033,482.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.
